Atenolol is a beta-blocker commonly used in the management of cardiovascular conditions. It works by blocking beta-1 adrenergic receptors, primarily in the heart, which slows the heart rate and reduces myocardial oxygen demand.

Indications Atenolol is prescribed for:

Hypertension (high blood pressure): Helps lower blood pressure and reduce cardiovascular risks. Angina pectoris (chest pain): Decreases the workload of the heart. Arrhythmias: Controls heart rate, especially in atrial fibrillation and supraventricular tachycardias. Post-Myocardial Infarction: Reduces mortality by decreasing heart stress and risk of arrhythmias. Migraine Prophylaxis (off-label): May reduce frequency and severity. Dosage Typical dose: 25–100 mg once daily. Adjustments may be needed based on the condition being treated, response, and renal function. Pharmacokinetics Absorption: Oral bioavailability is ~50%. Onset of Action: 1–2 hours. Duration: Effects last ~24 hours. Elimination: Primarily excreted by the kidneys, so dose adjustments are necessary for renal impairment. Mechanism of Action Atenolol selectively blocks beta-1 adrenergic receptors, leading to:

Decreased heart rate (negative chronotropy). Reduced myocardial contractility (negative inotropy). Lower blood pressure. Unlike non-selective beta-blockers, atenolol minimally affects beta-2 receptors, making it less likely to cause bronchospasm in the lungs.

Side Effects Common side effects include:

Fatigue Dizziness Bradycardia (slow heart rate) Hypotension (low blood pressure) Cold extremities Depression (less common) Sexual dysfunction Contraindications Avoid atenolol in:

Severe bradycardia AV block greater than first degree (without a pacemaker) Cardiogenic shock Severe peripheral arterial disease Uncontrolled heart failure Severe renal impairment (adjust dose cautiously) Warnings and Precautions Tapering Off: Do not abruptly discontinue atenolol to avoid rebound tachycardia or exacerbation of angina. Asthma/COPD: Though selective, caution is advised as it may still affect respiratory function in sensitive individuals. Diabetes: Atenolol can mask signs of hypoglycemia (e.g., tachycardia). Renal Impairment: Dose adjustment required due to renal excretion. Interactions Calcium Channel Blockers (e.g., verapamil, diltiazem): Risk of bradycardia or heart block. Anti-hypertensives: Additive effects may lead to hypotension. NSAIDs: May reduce antihypertensive effects. Clonidine: Abrupt discontinuation alongside atenolol may cause rebound hypertension. Key Counseling Points Take atenolol at the same time every day, with or without food. Monitor blood pressure and heart rate regularly. Report symptoms like extreme fatigue, dizziness, or bradycardia. Avoid abrupt discontinuation without medical advice.